

IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A method for compressing video information in a video sequence (I_t, I_{t+1}) comprising the steps of :

- . considering in said sequence a first video frame (B_t) containing image data ;

- . segmenting said first video frame (B_t) into segments ($S_{t,i}$) ;

- . for each segment ($S_{t,i}$) of the first video frame (B_t) :

- searching, in a second video frame (I_{t+1}) following the first video frame (B_t) in the video sequence, a corresponding predicted segment ($S_{t+1,i}^{p,forward}$) which matches with the segment ($S_{t,i}$) of the first video frame (B_t) according to a predetermined similarity measure ;

- calculating a raw set of motion parameters ($M_{t,i}^p$) describing the motion between the segment ($S_{t,i}$) of the first video frame (B_t) and the corresponding predicted segment ($S_{t+1,i}^{p,forward}$) of said second video frame (I_{t+1}) ; and

- . for each corresponding predicted segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}):

- searching, in the first video frame (B_t), a corresponding segment ($S_{t,i}^{p,backward}$) that matches with the predicted

segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}) according to a predetermined similarity measure ;

- calculating a best set of motion parameters ($M_{t,i}^p + \Delta M_{t,i}^p$) describing the motion between the corresponding segment ($S_{t,i}^{p,backward}$) of the first video frame (B_t) and the predicted segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}), said best set of motion parameters consisting in the raw set of motion parameters ($M_{t,i}^p$) corrected by a motion parameters correction ($\Delta M_{t,i}^p$).

2. (original) A method according to claim 1, characterized in that it includes a step of calculating a residual frame (R_{t+1}) for the second video frame (I_{t+1}) describing the structural differences between the first video frame (B_t) and the second video frame (I_{t+1}).

3. (currently amended) A method according to ~~any one of claims 1 and 2~~claim 1, characterized in that it includes a step of calculating a set of overlapping parameters for each predicted segment ($S_{t+1,i}^{p,forward}$) resolving the intersections between said predicted segment ($S_{t+1,i}^{p,forward}$) and adjacent other predicted segments of the second video frame (I_{t+1}).

4. (currently amended) A method according to ~~any one of claims 1 and 2~~claim 1, characterized in that it includes a step of calculating, for each video frame (B_{t+1}), a set of overlapping parameters resolving the intersections between the predicted segments of the second video frame (I_{t+1}).

5. (currently amended) A method according to ~~any one of claims 1 and 2~~claim 1, characterized in that the first video frame (B_t) is a decompressed video frame corresponding to a frame (I_t) of the video sequence processed by said compression method and the corresponding decompression method.

6. (currently amended) A method according to ~~any one of the preceding claims~~claim 1, characterized in that the best set of motion parameters ($M_{t,i}^p + \Delta M_{t,i}^p$) is defined according to a multi-layer motion description in which a first layer contains the raw set of motion parameters ($M_{t,i}^p$) and a second layer contains the motion parameters correction ($\Delta M_{t,i}^p$), the information of the first and second layers being distinguished.

7. (original) A method according to claim 6, characterized in that it includes a step of setting a flag to a first or a second

predetermined value indicating whether the motion parameters correction ($\Delta M_{t,i}^p$) has to be used for the video information decompression.

8. (currently amended) A method according to ~~any one of the preceding claims~~ claim 1, characterized in that it includes a step of determining a set of segmentation parameters defining the segmentation process implemented for segmenting the first video frame (B_t) into segments ($S_{t,i}$).

9. (original) A method for decompressing video information in a video sequence (I_t, I_{t+1}) comprising :

- . considering a first video frame (B_t) containing image data;
- . segmenting said first video frame (B_t) into segments ($S_{t,i}$);
- . for each segment ($S_{t,i}$) of the first video frame (B_t),

defining a projected segment ($S_{t+1,i}^p$) by applying to the segment ($S_{t,i}$) of the first video frame (B_t), a raw set of motion parameters ($M_{t,i}^p$) describing the motion between the segment ($S_{t,i}$) of the first video frame (B_t) and the corresponding projected segment ($S_{t+1,i}^p$) and

- . for each corresponding projected segment ($S_{t+1,i}^p$):
 - finding in the first video frame (B_t) a corresponding improved segment ($S_{t,i}^b$) using both the raw set of motion

parameters ($M_{t,i}^p$) and a motion parameters correction ($\Delta M_{t,i}^p$), the corresponding improved segment ($S_{t,i}^b$) being the segment of the first video frame (B_t) that would be projected on the corresponding projected segment ($S_{t+1,i}^p$) by applying to it the raw set of motion parameters ($M_{t,i}^p$) corrected by the motion parameters correction ($\Delta M_{t,i}^p$) ; and

- defining a corrected projected segment ($S_{t+1,i}^{p,0,c}$) by applying the raw set of motion parameters ($M_{t,i}^p$) corrected by the motion parameters correction ($\Delta M_{t,i}^p$) to the corresponding improved segment ($S_{t,i}^b$).

10. (original) A method according to claim 9, characterized in that it includes the steps of:

- considering a flag in the video information ; and
- calculating a corrected projected segment ($S_{t+1,i}^{p,0,c}$) by applying the raw set of motion parameters ($M_{t,i}^p$) corrected by the motion parameters correction ($\Delta M_{t,i}^p$) to the corresponding improved segment ($S_{t,i}^b$) if said flag has a first predetermined value and not calculating a corrected projected segment ($S_{t+1,i}^{p,0,c}$) if said flag has a second predetermined value.

11. (currently amended) A method according to claim 9 ~~or 10~~, characterized in that it includes a step of applying a set of overlapping parameters to the projected segments ($S_{t+1,i}^p$) resolving the intersections between the adjacent projected segments ($S_{t+1,i}^p$).

12. (currently amended) A method according to ~~any one of claims 9 to 11~~ claim 9, characterized in that the step of segmentation of said first video frame (B_t) into segments ($S_{t,i}$) includes a step of applying a set of segmentation parameters contained in the video information and defining the segmentation process implemented for segmenting the first video frame into segments ($S_{t,i}$) during the compressing stage.

13. (currently amended) A computer program product for a data processing unit, comprising a set of instructions, which, when loaded into said data processing unit, causes the data processing unit to carry out the method claimed in ~~any one of the preceding claims~~ claim 1.

14. (original) A device for compressing video information in a video sequence (I_t, I_{t+1})

comprising :

- means for segmenting the first video frame (B_t) containing image data into segments ($S_{t,i}$);

- means for searching, in a second video frame (I_{t+1}) following the first video frame (B_t) in the video sequence, a corresponding predicted segment ($S_{t+1,i}^{p,forward}$) which matches with the segment ($S_{t,i}$) of the first video frame (B_t) according to a predetermined similarity measure, for each segment ($S_{t,i}$) of the first video frame (B_t) ;

- means for calculating a raw set of motion parameters ($M_{t,i}^p$) describing the motion between the segment ($S_{t,i}$) of the first video frame (B_t) and the corresponding predicted segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}), for each segment ($S_{t,i}$) of the first video frame (B_t) ;

- means for searching, in the first video frame (B_t), a corresponding segment ($S_{t,i}^{p,backward}$) that matches with the predicted segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}) according to a predetermined similarity measure, for each corresponding predicted segment ($S_{t+1,i}^{p,forward}$) of the second video frame (I_{t+1}) ;

- means for calculating a best set of motion parameters ($M_{t,i}^p + \Delta M_{t,i}^p$) describing the motion between the corresponding segment

$(S_{t,i}^{p,backward})$ of the first video frame (B_t) and the predicted segment $(S_{t+1,i}^{p,forward})$ of the second video frame (I_{t+1}) , said best set of motion parameters consisting in the raw set of motion parameters $(M_{t,i}^p)$ corrected by a motion parameter correction $(\Delta M_{t,i}^p)$, for each corresponding predicted segment $(S_{t+1,i}^{p,forward})$ of the second video frame (I_{t+1}) .

15. (original) A device for decompressing video information in a video sequence (I_t, I_{t+1}) comprising :

- means for segmenting said first video frame (B_t) containing image data into segments $(S_{t,i})$;
- means for defining a projected segment $(S_{t+1,i}^p)$ for each segment $(S_{t,i})$ of the first video frame (B_t) , by applying to the segment $(S_{t,i})$ of the first video frame (B_t) , a raw set of motion parameters $(M_{t,i}^p)$ describing the motion between the segment $(S_{t,i})$ of the first video frame (B_t) and the corresponding projected segment $(S_{t+1,i}^p)$;
- means for finding, in the first video frame (B_t) , a corresponding improved segment $(S_{t,i}^b)$ using both the raw set of motion parameters $(M_{t,i}^p)$ and a motion parameters correction $(\Delta M_{t,i}^p)$, the corresponding improved segment $(S_{t,i}^b)$ being the segment of B_t that

would be projected on the corresponding projected segment ($S_{t+1,i}^p$) by applying to it the raw set of motion parameters ($M_{t,i}^p$) corrected by the motion parameters correction ($\Delta M_{t,i}^p$), for each corresponding projected segment ($S_{t+1,i}^p$) ; and

- means for defining a corrected projected segment ($S_{t+1,i}^{p,o,c}$) by applying the raw set of motion parameters ($M_{t,i}^p$) corrected by the motion parameters correction ($\Delta M_{t,i}^p$) to the corresponding improved segment ($S_{t,i}^b$), for each corresponding projected segment ($S_{t+1,i}^p$).

16. (currently amended) Compressed data corresponding to a video sequence, characterized in that it has been obtained by a compression method according to ~~any one of claims 1 to 8~~claim 1 and applied on said video sequence.